### (19) World Intellectual Property Organization

International Bureau





## (43) International Publication Date 16 June 2005 (16.06.2005)

### **PCT**

# (10) International Publication Number WO 2005/055319 A3

- (51) International Patent Classification<sup>7</sup>: H01L 23/427, 23/473
- (21) International Application Number:

PCT/DK2004/000849

- (22) International Filing Date: 7 December 2004 (07.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
  PA 2003 01803 8 December 2003 (08.12.2003) DK
- (71) Applicant (for all designated States except US): NOISE LIMIT ApS [DK/DK]; Hejrevang 21K, DK-3450 Allerød (DK).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): MADSEN, Henry [DK/DK]; Delfinvej 1, DK-3450 Allerød (DK). OLSEN, Henrik [DK/DK]; Kovangen 502, DK-3480 Fredensborg (DK).
- (74) Agent: ALBIHNS A/S; H.C. Andersens Boulevard 49, DK-1553 Copenhagen V (DK).

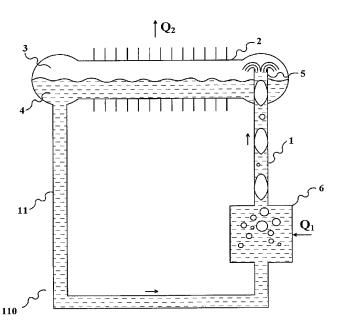
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Published:**

with international search report

[Continued on next page]

#### (54) Title: A COOLING SYSTEM WITH A BUBBLE PUMP



(57) Abstract: The present invention relates to a closed system for cooling without moving mechanical parts and at a low noise level, one or more heat-emitting elements. The system comprises a first heat-receiving part that is adapted to receive heat from the at least one heat-emitting element, a cooling fluid for absorption of heat by heating and evaporation, a bubble pump for generation of a fluid flow in the system, the bubble pump being positioned downstream the first heat-receiving part and moving the cooling fluid towards a radiator emission of heat from the cooling fluid in liquid form to the surroundings, and a condenser for condensing of evaporated cooling fluid and emission of the heat of condensation.





### WO 2005/055319 A3



- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

 $\textbf{(88)} \ \ \textbf{Date of publication of the international search report:}$ 

9 September 2005